REMARKS

The Examiner will note that the independent claims have been amended. Support for the amendments are as follows:

hydrogen form - p. 9, lines 1-2

100 to 10,000 wppm - paragraph 30

mode of dewaxing - paragraph 23

selectivity - paragraph 32

alumina containing binder - line 5 of paragraph 27.

Claim 8 is incorporated into claim 1 and has been cancelled without prejudice. Claim 35 has been cancelled.

The Examiner's First Rejection

Claims 1-4, 6-15, 17-23, 25-28 and 34 were rejected under 35 U.S.C. 102 (b) as being anticipated by GB 2,109,402.

The Examiner's Grounds

"GB 2,109,402 discloses a dewaxing process and a method for activating a zeolite catalyst useful in such a process (page 1, lines 5-20 and lines 85-92). It is taught that the activity of a zeolite catalyst may be enhanced or maintained by co-feeding water and/or a water precursor such as an alcohol to the reaction zone (page 1, lines 60-70). It is taught that the water or water precursor such as methanol, ethanol, propanol, butanol, and 2-pentanol, may be injected into the reaction zone, either directly to the reactor or combined with the feed (page 3, lines 100-110). It is taught that about 0.01 to about 30 volumes of water-water precursor per unit volume of catalyst are effective for prolonging catalyst life (page 3, lines 115-125). It is taught that the conditions of catalytic dewaxing used (and thus the conditions of the activation process) are temperatures from 300-500 degrees C and pressures of 5000kPa or greater (page 3, lines 20-30)."

"Suitable zeolites include ZSM-5, ZSM-11, ZSM-12, ZSM-35, ZSM-38, zeolite Y, zeolite beta, and ZSM-20 (page 1, lines 115-130 and page 2, lines 1-10). It is taught that the zeolite may be combined with a hydrogenation component, including group 9 or 10 noble metals such as platinum and/or palladium (page 3, lines 75-80). The catalyst may also be presulfided, particularly if a base metal is used (page 3, lines 80-90)."

"As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by GB 2,109,402."

Applicants' Response

The amended claims are not anticipated by GB 2,109,402 for the following reasons.

1. According to GB 2,109,402, page 2, lines 13-18, "...the effect of the activation procedure is most notable when the zeolite is wholly or substantially in the alkali metal exchanged form, especially the sodium form, although improvements in it activity may also be noted when the zeolite is only partly in the alkali metal form, for example in the H/Na form."

In contrast, applicants' amended claims specify a molecular sieve in the hydrogen form.

2. According to the '402 patent, page 4, lines 22-24, the amount of water and/or precursor is normally in the range of 0.1 to 2.0 volume percent of the feed. The amounts of water in the Examples of the '402 patent is 5 volume % of the hydrocarbon feed rate except for Example III which states a water co-feed rate of 3-5 vol. %. In contrast applicants' amended claims specify an amount of oxygenate from 100 to 10,000 wppm. This is a much lower amount than that used in the '402 patent.

3. The difference in amounts of oxygenate in the present amended claims vs. the 5 vol.% of Example III of the '402 patent leads to different reactions. As can be seen from Fig. 3

of the '402 patent, the reaction temperature climbs steadily until water is injected. After the point of water injection, the reaction temperature drops from about 352°C to about 338°C. Applicants' process does not show a similar decrease in reaction temperature with oxygenate treatment (see for example, Table 2)

4. The '402 patent states that the "...activation process of the invention may be used in a variety of hydrocarbon conversion processes but it is particularly applicable to cracking and hydrocracking processes and also to processes which employ the reactions characteristic of cracking and hydrocracking, for example, dewaxing (which, as generally practiced, is a shape selective hydrocracking reaction) and hydrotreating (which involves some cracking of heterocyclics in order to convert the heterocyclic atoms such as nitrogen and sulfur to hydrogenated forms such as ammonia and hydrogen sulfides). The process is particularly useful in catalytic dewaxing processes which are normally carried out in the presence of hydrogen and are therefore correctly referred to as hydrodewaxing processes. In processes of this kind, the waxy constituents of the feedstock, which are long chain, for example $C_{12}+$, normal paraffins are converted to shorter chain fragments which do not make so great a contribution to high pour points in the product."

In contrast, applicants' amended claims specify the mode of dewaxing of their catalysts is by isomerization, not cracking, as in the '402 patent. This difference is reflected in the improved isomerization selectivity of at least 4 relative % more lube isomerate. The '402 cracking process cracks long chains to short chains which is a different mechanism to achieve a different result.

The Examiner's Rejection

Claims 1-6 and 9-12 were rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/07538.

The Examiner's Arugments

"WO 01/07538 discloses a process for preparing a lubricating base oil by contacting synthetic waxes, which was obtained by a Fischer-Tropsch process and has not been subjected to a hydroisomerization treatment, with a catalyst composition comprising at least a hydrogenation component, a zeolite, and a binder material (Abstract). Suitable zeolites include ZSM-12, mordenite, **beta, ferrierite, ZSM-11, ZSM5, ZSM-22, ZSM-23, ZSM-35, ZSM-38, ZSM-48, and ZSM-57** (page 6, lines 5-10). Suitable hydrogenation components include a Group VIB and/or Group VIII metal component, including the noble metals platinum and/or palladium (page 9, lines 10-35). The hydrogenation component may be used in sulfide form (page 9, lines 10-20). It is taught that dewaxing conditions include temperatures in the range of from 200-500 degrees C and hydrogen pressures of 10-200 bar (page 10, lines 5-15). An example details dewaxing in the presence of oxygenate compounds, defined by the reference as alcohols, ketones, and aldehydes (page 3, lines 25-28 and Example 4). As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by WO 01/07538."

Applicants' Response

Applicants' amended claim 1 is directed to a molecular sieve on an alumina or alumina-containing binder. Applicants examples are to ZSM-48 on an alumina binder. According to WO 01/07538, the binder is essentially free of alumina (page 2, line 33). This is further emphasized on page 7, lines 18-20. Thus the amended claims are not anticipated by WO 01/07538.

The Examiner's Rejection

Claims 8, 3-17, and 19-33 were rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/07538 as applied above for claims 1-6 and 9-12.

The Examiner's Grounds

"The teachings of the WO reference are as described above for claims 1-6 and 9 12. "

'The difference between the reference is that the reference discloses a range of oxygenate compounds of "less than 500 ppm" while the instant claims require "at least 100 ppm." However the range disclosed by the reference overlaps the range instantly claimed. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. In re *Boesch,* 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ.'

Applicants' Response

The amended claims are patentable over WO 01/07538 because the reference teaches directly away from an alumina or alumina-containing binder as noted above.

In the WO reference, Example 4 cited by the Examiner teaches hydrotreatment to reduce oxygen content to below 500 ppmw. There is no recognition in the WO reference that the selectivity of the catalyst can be improved by oxygenate as set forth in the amended claims.

In the cited reference, oxygenates are merely feed contaminants that need to be removed. Thus there is no suggestion of applicants' claimed process.

The Examiner's Rejection

Claim 35 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over either GB 2,109,402 or WO 01 /07538.

The Examiner's Grounds

"GB 2,109,402 discloses a catalyst composition which has been contacted, in the presence of a dewaxing feed, with an oxygenated compound (i.e. water or a water precursor). Refer to pages 1-3."

"WO 01/07538 discloses a catalyst composition which has been contacted, in the presence of a dewaxing feed, with an oxygenated compound. Refer to Example 4. The disclosed product and the instantly claimed product appear to be essentially the same, comprised of the same components, and used in the same manner. In the event any differences can be shown for the product of the product-by-process claim 35 as opposed to the product taught by the prior art, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. See In *re Thorpe,* 227 USPQ 964 (Fed. Cir. 1985). Also, when the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patently distinct and not the examiner to show the same process of making. *In re Brown,* 173 USPQ 685 and *In re Fessmann,* 180 USPQ 324."

Applicant's Response

Claim 35 has been cancelled without prejudice so this rejection is now moot.

Claim 35 was also provisionally rejected for obviousness - type double patenting over claims 1-5 of copending application 10/652,391. This grounds is also rendered moot by the cancellation of claim 35.

In view of the amended claims and the arguments set forth above, it is urged that applicants have overcome the cited rejections and that applicants have made a patentable advance in the art. Favorable action is solicited.

Respectfully submitted:

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